

A Comparative Study on Anxiety Towards COVID-19 Among Dental Postgraduate Trainees of Different Specialties in Karachi, Pakistan



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OBJECTIVE: Dental health care workers around the globe are potentially vulnerable of contracting COVID-19 disease. Many studies have investigated the presence of anxiety and mental health issues amongst the healthcare worker, especially the dental professional, during COVID-19. This study aimed to compare the anxiety of dental postgraduate trainees of different specialties towards COVID-19.

METHODOLOGY: An online questionnaire comprising 11 items was forwarded to dental postgraduate (PGs) trainees in Karachi for specialties of Endodontics/Operative Dentistry, Oral Surgery, Prosthodontics and Orthodontics. Responses to 9 questions were recorded on a 3-point Likert scale, where 'Agree' indicated anxiety and 'Disagree' showed no anxiety. Questions also inquired PGs opinion about the specialty and dental procedures which they perceived to have the greatest risk of infection.

RESULTS: Almost 62% of responses by the participants affirmed their anxiety as demonstrated by their reply to various questions based on Likert scale. Gender ($p = 0.012$) and marital status ($p = 0.036$) revealed significant difference with respect to anxiety related to closure of dental OPD in face of second wave of COVID-19 and treatment cost if infected, respectively. Treatments like ultrasonic scaling (84%) and endodontics (79%) while training in specialty of Endodontics/Operative Dentistry (88%) and Oral Surgery (69%) were considered having greatest risk to contract COVID-19.

CONCLUSION: Anxiety was expressed among trainees of all dental specialties, with training in specialties of Endodontics and Oral Surgery considered at the highest risk of contracting COVID-19, with ultrasonic scaling and endodontics regarded as most risky procedures.

KEYWORDS: Anxiety, COVID-19, Endodontics/Operative Dentistry, Oral Surgery, Orthodontics, Prosthodontics.

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INTRODUCTION

The novel coronavirus (SARS-CoV2) is an enveloped virus whose genetic material comprises of a positive-sense single-stranded RNA.¹ It is responsible for a

deadly disease called coronavirus disease 2019 (COVID-19).² Due to its highly contagious nature and an increased number of confirmed cases and death counts across the globe, World Health Organization (WHO) declared COVID-19 as a high-risk pandemic on March 11th, 2020. The worldwide dramatic spread of coronavirus 2019 (COVID-19) pandemic has caused an immense public health crisis.³

The effect of the COVID-19 pandemic is not only directly related to health issues. In fact, the stress and anxiety^{2,3} regarding the morbidity and mortality associated with the COVID-19 pandemic has had devastating consequences on the mental and intellectual wellbeing of individuals. This anxiety has been coupled with negative social and psychological effects.⁴ Due to the nature of their professional

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commitments, the health care professionals are at a greater risk of exposure to a pandemic infection leading to more psychological distress as compared to the general public, causing an additional impact on their mental health.⁵ Also, determinants like lack of expertise in dealing with the relatively novel disease, greater influx of ill patients, long working hours, changes in lifestyle, lack of sufficient PPEs, and the unavailability of an effective treatment for a potentially fatal disease has not only overwhelmed the health care system but has also increased the incidence of fear, anxiety, and despair in healthcare workers, adversely affecting their mental well-being.⁶

Dental health care workers around the globe are potentially vulnerable of contracting COVID-19 disease.⁷ The SARS-CoV2 viral load in human saliva is proven to be very high and its spread is primarily through droplets and aerosols. This feature of the spread of COVID-19 has made dentists especially more prone to contracting COVID-19 owing to the nature of dental procedures they perform.⁸ Exposure of dental professionals and patients to the pathogenic microorganism is a concern in dental care setting, due to the specificity of its procedures, which include close contact with patients, aerosol generation, repeated exposure to blood, saliva and other body fluids and also its spread by asymptomatic carriers, places dentists in a high-risk group.⁹ High speed handpiece is the hazardous source of bio-aerosols generation, which has the potential to remain airborne, easily entering the respiratory system of the dental team and patients.¹⁰ This fact has resulted in the development of even higher levels of anxiety among dentists.¹¹ Also, due to its devastating effects on the healthcare system, all routine dental care had been suspended in many countries affected by COVID-19 disease during the period of the pandemic, becoming limited to dental emergency and urgent procedures only.¹²

The data comparing presence of anxiety specifically among the dental postgraduate (PGs) trainees belonging to different specialties is scarce. This study therefore was designed to evaluate the psychological burden among dental postgraduate students during the coronavirus pandemic and to find out if there is an established difference between various specialty groups. This data would be crucial to highlight the issues related to anxiety pertaining especially to postgraduate residents in the current pandemic, and for providing recommendations towards provision of psychological support, improvement of the psychological health support services and strengthening mental healthcare nationwide.

METHODOLOGY

After taking ethical approval from Institutes' Research and Ethics Committee mention the IRB number, an online

cross-sectional survey was conducted on postgraduate trainees currently enrolled in the CPSP recognized FCPS training programs of Endodontics/Operative Dentistry, Oral Surgery, Prosthodontics and Orthodontics using google forms, from May to June 2021. Items were designed for the questionnaire after extensive literature search of pertinent studies. To ensure the validity of the questionnaire, it was examined by specialists in dentistry and dental education experts to determine the clarity of the questions and context relevance of the questions. A pilot study was conducted on 10 trainees to ascertain any complexity in the questionnaire and then the items were modified in light of the feedback of these residents. The questionnaire was divided into 3 sections. In the first section, consent was requested from the respondents, indicated by ticking the consent checkbox. Only respondents who consented to be part of the study could fill the remainder of the form. The second section included socio-demographic details like age, gender, marital status, specialty, year of practice and email address. The third section consisted of 11 questions out of which responses to 9 questions were recorded on a 3-point Likert scale (Agree, Neutral, Disagree) where Agree indicated anxiety, Neutral indicated neither agree/disagree and Disagree showed no anxiety. Questions also inquired PGs opinion about the specialty and dental procedures which they perceived to have the greatest risk of transmitting the corona virus.

The final questionnaire comprising of 11 items was forwarded through a link to all dental postgraduate (PGs) trainees currently enrolled in the CPSP recognized FCPS training programs of Endodontics/Operative Dentistry, Oral Surgery, Prosthodontics and Orthodontics using social media platforms such as WhatsApp Messenger, Facebook and Gmail. The study population was based on the total CPSP enrolled trainees in Karachi, with a total of 203 trainees as was communicated through official correspondence with the CPSP official email. A reminder was sent one week later to ensure maximum number of responses. No further responses were included after 2 weeks. Any trainee who did not consent or was not currently actively pursuing training or on long leave was excluded. Data was collected and analysed using SPSS v23. Chi-square test was used to determine any significant difference between the responses of different post-graduate trainees (p -value ≤ 0.05).

RESULTS

On the basis of unfilled or partially filled forms received, 9 participants were excluded and a total of 103 correctly filled forms were analysed for this survey. The 50.7% response rate was within the general acceptable degree for online based survey responses.¹³

The mean age of the study participants was found to be 28.07 ± 2.58 years. Frequencies and percentages of the demographic data of participants was calculated. Out of the total 103 participants, 41 (39.8%) were male and 62 (60.2%) female. Around 36.9% (n=38) were married. By field of specialty 50 (48.5%) trainees were in the field of Endodontics/Operative Dentistry, 18 in (17.5%) Orthodontics, 22 in (21.4%) Oral and Maxillofacial Surgery and 13 (12.6%) in Prosthodontics. Chi-square test was used to determine any significant difference between the responses of different post-graduate trainees (p -value ≤ 0.05). No significant difference (p -value ≤ 0.05) was found in this regard (Figure 1). Almost 62% of responses by the participants affirmed their anxiety as demonstrated by their reply to

various questions (Question 1 to Question 9 in Table I) based on Likert scale while 20% responses showed disagreement. The items that yielded a statistically significant response are mentioned in Table II. Treatments like Ultrasonic Scaling followed by Root canal treatment/ dental fillings as shown in Figure 2a, while training in specialty of Endodontics/Operative dentistry, Oral Surgery and Periodontic were perceived to have a greatest risk for contracting COVID-19 Figure 2b.

Table 1: Responses of postgraduate trainees on 3-point Likert scale

Questions	Agree	Neutral	Disagree
	n (%)		
Q1- Do you hesitate in performing dental procedures due to COVID-19 pandemic?	59 (57.3)	19 (18.4)	25 (24.3)
Q2- Would you feel anxious while doing an elective dental procedure in a patient with 10 days travel history and mild flu symptoms?	82 (79.6)	10 (9.7)	11 (10.7)
Q3- Are you concerned that your performance in Dental OPD has been affected during the COVID-19 pandemic?	75 (72.8)	14 (13.6)	14 (13.6)
Q4- Do you think that despite wearing double masks/double gloves/eye shield/gown, you can still get infected with COVID-19?	24 (23.3)	33 (32.0)	46 (44.7)
Q5- Are you afraid of being isolated in case you develop COVID-19 symptoms?	65 (63.1)	17 (16.5)	21 (20.4)
Q6- Are you concerned that your post-graduation training was affected during the lockdown period?	80 (77.7)	7 (6.8)	16 (15.5)
Q7- Are you anxious about the cost of treatment if you get infected with COVID-19?	64 (62.1)	18 (17.5)	21 (20.4)
Q8- Do you think that Dental OPDs should be closed again in the face of ongoing wave of corona?	72 (69.9)	20 (19.4)	11 (10.7)
Q9- Do you feel reassured when you hear or read about vaccines being developed for COVID-19?	55 (53.4)	26 (25.2)	22 (21.4)

n = number of responses

Table 2: Level of significance in questions with respect to clinical specialty, gender, marital status

CLINICAL SPECIALTY	AGREE n (%)	NEUTRAL n (%)	DISAGREE n (%)	p-value
Are you anxious about the cost of treatment if you get infected with COVID-19?				
Operative dentistry/ Endodontics	22 (44.0)	13 (26.0)	15 (30.0)	0.019*
Oral and Maxillofacial Surgery	16 (72.7)	3 (13.6)	3 (13.6)	
Orthodontics	15 (83.3)	2 (11.1)	1 (5.6)	
Prosthodontics	11 (84.6)	0 (0.0)	2 (15.4)	
GENDER				
Do you think that Dental OPDs should be closed again in the face of ongoing wave of corona?				
Female	50 (80.6)	7 (11.3)	5 (8.1)	0.012*
Male	22 (53.7)	13 (31.7)	6 (14.6)	
MARITAL STATUS				
Are you concerned that your post graduation training was affected during the lockdown period?				
Married	34 (89.5)	0 (0.0)	4 (10.5)	0.046*
Single	46 (70.8)	7 (10.8)	12 (18.5)	
Are you anxious about the cost of treatment if you get infected with COVID-19?				
Married	29 (76.3)	6 (15.8)	3 (7.9)	0.036*
Single	35 (53.8)	12 (18.5)	18 (27.7)	

*p-value ≤ 0.05 is statistically significant
n= number of responses)

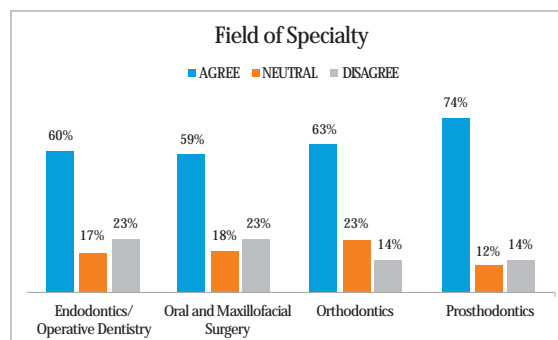
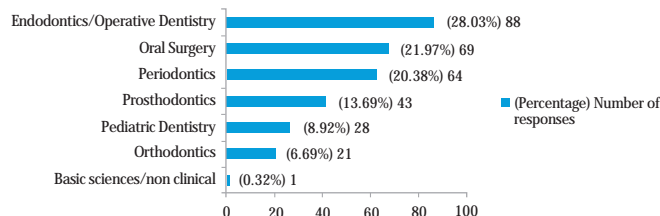


Figure 1: Comparison of responses of dental trainees based on specialty

2a. Which specialty trainees do you think are at the greatest risk to get infection based on the procedures they perform?



2b. Of the following dental treatments, which dental procedure causes you to be anxious in terms of cross infection during this COVID-19 pandemic?

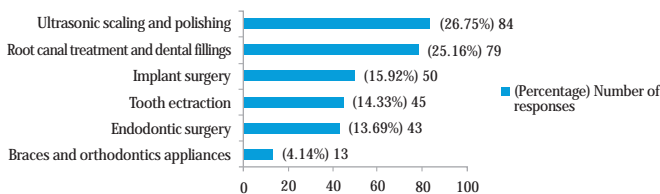


Figure 2a): PGs opinion about the dental procedures which causes them to become anxious in terms of cross-infection during COVID-19 pandemic **b)** PGs opinion about the specialty trainees which they think to have the greatest risk to get infection based on the procedures they perform

DISCUSSION

This study compared the anxiety exhibited by postgraduate trainees belonging to different dental specialties.

The mental wellbeing of dentists may be affected with an elevated level of anxiety and hesitation when providing dental treatment in current circumstances, due to the fear of getting infected with corona virus from patients or co-workers. The same is supported by the findings of this study wherein 57.3% and 79.6% postgraduate trainees reported positively in their hesitation while performing dental procedures during the pandemic and while doing an elective dental procedure, respectively. Irrespective of the demographics, the overall anxiety in the postgraduate trainees was found to be high i.e. 62% which is congruent to various studies reported in the literature.^{14,15} Besides the fear of being isolated or quarantined as a result of COVID-19 and how their family would cope during this stressful period, the additional burden in terms of treatment costs of the illness further aggravates ones' anxiety.¹⁶

The infection control measures for cross infection in the dental practice should be strictly followed in the current circumstances.¹⁷ The findings obtained through our study show 23.2% postgraduate trainees believed that wearing of PPEs (double mask, double gloves, eye shield, gown) is not sufficient to prevent the possibility of cross infection from COVID-19. This further exacerbates their anxiety while communicating with or treating patients in close proximity. The majority of respondents were of the opinion that these cross infection control measures would help mitigate the chances of acquiring infection. This highlights the importance of provision of proper cross infection control measures and equipment for these post graduate trainees by training centers, so that they can continue their training without the fear and anxiety of getting infected during their clinical practice. In the current study, 77.7% postgraduate trainees agreed that their postgraduate clinical training was adversely affected during the lockdown period, which includes different aspects like reduced number of clinical cases related to specialty, transition to online lectures from physical interaction with their supervisors, cancellation of educational conferences, and completion of the stipulated training time before they appear for their certification exams.¹⁸

COVID-19 pandemic has affected the dental practices nationwide following the closure or partial opening of OPDs. Female postgraduate trainees showed significantly higher level of COVID-19 anxiety (80.6%) than males (53.7%) favouring closure of practices until the number of cases start declining, indirectly signifying fear and anxiety amongst them. This finding is in accordance with the findings of other studies. A study in Greece during COVID-19 pandemic revealed high levels of COVID-19 related fear and anxiety in women as compared to men. Similarly, study of the Chinese population showed greater level of anxiety, stress, and depression among women, compared with men.^{19,20}

Furthermore, a study conducted in Pakistan's general population during COVID pandemic showed higher anxiety in female population than in male.²¹ The findings are in line with evidence that suggest women report more fear and anxiety than men.²² The reason could also be the fear that in case of getting infected and falling ill, individuals in the family like their children who are dependent on them would suffer.

The prolonged incubation period (7-14 days) before the onset of symptoms makes it difficult to limit the spread since it is challenging to identify individuals who may be infected.¹⁴ The anxiety of being isolated in case one develops symptoms of infection is a legitimate fear when considering the struggle that the remaining family members are likely to endure. Since the various aspects associated with this particular disease, including the potential spread to other family members, and the required measures of quarantine are a possibility as a result of contracting this disease, the apprehension is not unfounded. Similar results are obtained in the present study where 63.1% of the postgraduate trainees reported fear of getting quarantined as a result of suspected disease or actual infection.

In the current study, questions also inquired about the respondents' opinion about the specialty and dental procedures which they perceived to have the greatest risk of acquiring infection. The results showed that dental procedures like ultrasonic scaling/polishing and operative dentistry procedures (RCT/dental fillings) caused them to become more apprehensive in terms of cross infection in the coronavirus pandemic as compared to implant surgery, tooth extraction, endodontics surgery and braces/orthodontic appliances. Also, the training in specialty of Endodontics/Operative Dentistry, Oral Surgery and Periodontics were considered to be at the greatest risk to contract COVID-19 infection as compared to Prosthodontics, Pediatric Dentistry, Orthodontics, and basic sciences. This is generally due to the nature of dental procedures that the identified specialties include which mainly generates aerosols and splatters contaminated with viruses and bacteria thereby posing greater chances of transmitting acute viral respiratory infection.⁸ This causes even higher levels of concern among dentists with increased risk of exposure to infectious diseases via respiratory droplets as they work in a closer proximity with the patients, particularly their mouth, thus increasing the transmissibility of coronavirus through saliva.²³

Some limitations of this study is that it was conducted during the peak of the pandemic, and therefore anxiety of the dentists may alter overtime with emerging research, availability of various vaccines and the possibility of developing treatment of COVID-19. Although the questionnaire was sent to the dental postgraduate trainee of

all dental specialties in Karachi, but responses from trainees of clinical specialties like Prosthodontics was low. Only the dental postgraduates from Karachi were included, so the findings cannot be generalized for the entire population of dental postgraduates in Pakistan. Also, we were not able to explore all the dental specialties like Periodontology, Pediatric Dentistry etc, as training in these specialties is not currently being conducted in Karachi.

Despite these limitations, this study identifies factors which are contributing to the anxiety of postgraduate trainees in terms of getting infected during their clinical training.

CONCLUSION

Anxiety was expressed among trainees of different dental specialties, with ultrasonic scaling and endodontic treatment considered the highest risk procedures for contracting COVID. Training in specialties of Endodontics/Operative Dentistry and Oral Surgery was regarded as being the most risky by the trainees in terms of contagiousness for COVID-19.

CONFLICT OF INTEREST

None declared

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